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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,653	03/30/2007	Wolfgang Stolz	12007-0074	5779
22902	7590	07/21/2010		
CLARK & BRODY 1700 Diagonal Road, Suite 510 Alexandria, VA 22314			EXAMINER QUINTO, KEVIN V	
			ART UNIT 2826	PAPER NUMBER
			MAIL DATE 07/21/2010	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/580,653

**Applicant(s)**

STOLZ ET AL.

**Examiner**

Kevin Quinto

**Art Unit**

2826

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 33, 34 and 36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 33, 34 and 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS-08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date 6 May 2010

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments with respect to claims 33, 34, and 36 have been considered but are moot in view of the new ground(s) of rejection.
2. The examiner notes the applicant's remarks concerning the citation of the Fan and the Fallahi references. The remarks made in paragraph 2 of the previous Office action (mailed on January 6, 2010) were to note that they were not part of the list shown on p. 7 of the response filed by the applicant on October 13, 2009. The examiner would like to note that these documents were not cited in a proper Information Disclosure Statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims 33, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (United States Patent Application Publication No. US

2003/0118069 A1) in view of Ellmers ("GaAs-based VCSEL-structures with strain-compensated (GaIn)As/Ga(PAs)-MQWH active regions grown by using TBAs and TBP," Journal of Crystal Growth, 1998, Elsevier Science B.V., 195, p. 630-636).

5. In reference to claim 33, Johnson (United States Patent Application Publication No. US 2003/0118069 A1) discloses a semiconductor layer structure in which the layer for light product is at least one quantum film of InGaAsN or InGaAsNSb in figures 2, 3, 4, 5, 6, and 7. There is at least one strain-compensating layer(s) for surrounding layers of a semiconductor device. The strain compensating layers(s) are semiconducting layer(s) of Ga(PAs) or Ga(NAs) strained by tensile stress such that the layer succession features one or several layers with arsenic and/or phosphorus (p. 4, paragraph 68). Johnson does not disclose forming these layers by MOVPE with TBA (tertiary butyl arsine) and TBP (tertiary butyl phosphine) as sources. However Ellmers ("GaAs-based VCSEL-structures with strain-compensated (GaIn)As/Ga(PAs)-MQWH active regions grown by using TBAs and TBP," Journal of Crystal Growth, 1998, Elsevier Science B.V., 195, p. 630-636) discloses such a process. Ellmers discloses the formation of strain compensating layers with the use of TBAs sources and/or TBP sources (abstract, p. 631-632). The strain compensating layer(s) are achieved and compressively or tensilely strained by MOVPE by use of TBA (tertiary butyl arsine) and TBP (tertiary butyl phosphine). Ellmers discloses that the process has the benefit of being less toxic as well as leading to structures which have higher compositional control and homogeneity (p. 631). In view of Ellmers, it would therefore be obvious to form the strain compensating layers by MOVPE with TBA (tertiary butyl arsine) and TBP (tertiary butyl

phosphine) as sources. With regard to the claimed temperature range, Ellmers discloses the use of MOVPE at the temperature of 590-625°C (p. 632). The examiner would like to note:

In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP 2144.05.

Thus claim 33 is not patentable over Johnson and Ellmers.

6. With regard to claim 34, the strain-compensating layers are deposited within layers to be compensated in their individual or common strain (p. 3, paragraph 42).
7. With regard to claim 36, compression-strained semiconductor layers are compensated for their strain (p. 3, paragraph 42).

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quinto whose telephone number is (571) 272-1920. The examiner can normally be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Purvis can be reached on (571) 272-1236. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kevin Quinto/  
Examiner, Art Unit 2826

/Minh-Loan T. Tran/  
Primary Examiner  
Art Unit 2826

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